Do-it-yourself service precautions

If you perform maintenance yourself, be sure to follow the correct procedure given in these sections.

Items	Parts and tools
Battery condition (→P. 561)	• Warm water • Baking soda • Grease • Conventional wrench (for terminal clamp bolts)
Brake fluid level (→P. 559)	• FMVSS No.116 DOT 3 or SAE J1703 brake fluid • Rag or paper towel • Funnel (used only for adding brake fluid)
Engine coolant level (→P. 557)	• "Toyota Super Long Life Coolant" or similar high quality ethylene glycol based non-silicate, non-amine, non-nitrite and non-borate coolant with long-life hybrid organic acid technology. For the U.S.A.: "Toyota Super Long Life Coolant" is pre-mixed with 50% coolant and 50% deionized water. For Canada: "Toyota Super Long Life Coolant" is pre-mixed with 55% coolant and 45% deionized water. • Funnel (used only for adding engine coolant)

Items	Parts and tools
Engine oil level (→P. 553)	• "Toyota Genuine Motor Oil" or equivalent • Rag or paper towel, funnel (used only for adding engine oil)
Fuses (→P. 584)	• Fuse with same amperage rating as original
Headlight aim (→P. 601)	• Phillips-head screwdriver
Tire inflation pressure (→P. 573)	• Tire pressure gauge • Compressed air source
Radiator and condenser (→P. 559)	—
Washer fluid (→P. 564)	• Water washer fluid containing anti-freeze (for winter use) • Funnel

CAUTION

The engine compartment contains many mechanisms and fluids that may move suddenly, become hot, or become electrically energized. To avoid death or serious injury, observe the following precaution:

When working on the engine compartment

- Keep hands, clothing, and tools away from the moving fans and engine drive belt.
- Be careful not to touch the engine, radiator, exhaust manifold, etc. right after driving as they may be hot. Oil and other fluids may also be hot.
- Do not leave anything that may burn easily, such as paper or rags, in the engine compartment.
- Do not smoke, cause sparks or expose an open flame to fuel or the battery. Fuel and battery fumes are flammable.
- Be extremely cautious when working on the battery. It contains poisonous and corrosive sulfuric acid.

CAUTION

When working near the electric cooling fan or radiator grille

Be sure the “ENGINE START STOP” switch is OFF.
With the “ENGINE START STOP” switch in IGNITION ON mode, the electric cooling fan may automatically start to run if the air conditioning is on and/or the coolant temperature is high.
(→P. 559)

Safety glasses

Wear safety glasses to prevent flying or falling material, fluid spray, etc. from getting in the eyes.

NOTICE

If you remove the air cleaner

Driving with the air cleaners removed may cause excessive engine wear due to dirt in the air. Also a backfire could cause a fire in the engine compartment.

Hood

Release the lock from the inside of the vehicle to open the hood.

STEP 1 Pull the hood release lever.

The hood will pop up slightly.

STEP 2 Lift the auxiliary catch lever and lift the hood.

⚠ CAUTION

Pre-driving check

Check that the hood is fully closed and locked.
If the hood is not locked properly, it may open while the vehicle is in motion and cause an accident, which may result in death or serious injury.

Positioning a floor jack

When raising your vehicle with a floor jack, position the jack correctly. Improper placement may damage your vehicle or cause injury.

n Front

▶ 2WD models

▶ AWD models

n Rear

CAUTION

■ **When raising your vehicle**

Make sure to observe the following to reduce the possibility of death or serious injury:

- Lift up the vehicle using a floor jack such as the one shown in the illustration.

CLY42AD001

- Do not use the jack that was supplied with your vehicle.
- Do not put any part of your body or get underneath the vehicle supported only by the floor jack.
  Always use automotive jack stands on a solid, level surface.
- Do not start the engine while the vehicle is supported by the floor jack.
- Stop the vehicle on level firm ground, firmly set the parking brake and put the shift lever in “P”.
- Make sure to set the floor jack properly at the jack point.
  Raising the vehicle with an improperly positioned floor jack will damage the vehicle and may cause the vehicle to fall off the floor jack.
- Do not raise the vehicle while someone is in the vehicle.
- When raising the vehicle, do not place any objects on top of or underneath the floor jack.
- Vehicles with electronically modulated air suspension:
  Be sure to turn off the height control and stop the engine. Otherwise, the vehicle height may change in the automatic leveling function. (→P. 212)

Engine compartment

▶ 2WD models

1 Battery (→P. 561)

2 Engine oil level dipstick (→P. 553)

3 Engine oil filler cap (→P. 553)

4 Brake fluid reservoir (→P. 559)

5 Washer fluid tank (→P. 564)

6 Electric cooling fans

7 Condenser (→P. 559)

8 Radiator (→P. 559)

9 Engine coolant reservoir (→P. 557)

10 Fuse boxes (→P. 584)

▶ AWD models

1 Battery (→P. 561)
2 Engine oil level dipstick (→P. 553)
3 Engine oil filler cap (→P. 553)
4 Brake fluid reservoir (→P. 559)
5 Washer fluid tank (→P. 564)
6 Electric cooling fans
7 Condenser (→P. 559)
8 Radiator (→P. 559)
9 Engine coolant reservoir (→P. 557)
10 Fuse boxes (→P. 584)

Engine compartment cover

n Removing the engine compartment covers

▶ Outside

▶ Front

n Installing the clips

Battery cover

n Removing the battery cover

n Installing the clips

▶ Type A

▶ Type B

NOTICE

- **When installing the battery cover**

Securely install the cover over the battery. Failure to do so may cause water to enter the engine compartment when it rains or the vehicle is washed, resulting in a malfunction.

Engine oil

With the engine at operating temperature and turned off, check the oil level on the dipstick.

n Checking the engine oil

STEP 1 Park the vehicle on level ground. After turning off the engine, wait more than five minutes for the oil to drain back into the bottom of the engine.

STEP 2 Hold a rag under the end and pull the dipstick out.

▶ 2WD models

CLY43AD337

▶ AWD models

CLY43AD317

STEP 3 Wipe the dipstick clean.

STEP 4 Reinsert the dipstick fully.

STEP 5 Holding a rag under the end, pull the dipstick out and check the oil level.

STEP 6 Wipe the dipstick and reinsert it fully.

1 Low

2 Full

CLY43AD329

n Adding engine oil

If the oil level is below or near the low level mark, add engine oil of the same type as already in the engine.

CLY43AD226

Make sure to check the oil type and prepare the items needed before adding oil.

Engine oil selection	→P. 670
Oil quantity (Low → Full)	1.6 qt. (1.5 L, 1.3 Imp. qt.)
Items	Clean funnel

STEP 1 Remove the oil filler cap by turning it counterclockwise.

STEP 2 Add engine oil slowly, checking the dipstick.

STEP 3 Install the filler cap, turning it clockwise.

Engine oil consumption

- The amount of engine oil consumed depends on the oil viscosity, the quality of the oil and the way the vehicle is driven.
- More oil is consumed under driving conditions such as high speeds, frequent acceleration and deceleration.
- A new engine consumes more oil.
- When judging the amount of oil consumption, keep in mind that the oil may have become diluted, making it difficult to judge the true level accurately.
- Oil consumption: Max. 1.1 qt./600 miles, 0.9 Imp. qt./600 miles (1.0 L per 1000 km)
- If your vehicle consumes more than 1.1 qt. (1.0 L, 0.9 Imp. qt.) every 600 miles (1000 km), contact your Lexus dealer.

After changing the engine oil

The oil change system should be reset. Perform the following procedures:

STEP 1 Switch the display to the trip meter "A" when the engine is running. (→P. 171)

STEP 2 Turn the "ENGINE START STOP" switch OFF.

STEP 3 While pressing the trip meter reset button, set the "ENGINE START STOP" switch to IGNITION ON mode (but do not start the engine because otherwise the reset mode will be cancelled). Press and hold the button until the multi-information display indicates that the reset is complete.

CAUTION

Used engine oil

- Used engine oil contains potentially harmful contaminants which may cause skin disorders such as inflammation or skin cancer, so care should be taken to avoid prolonged and repeated contact. To remove used engine oil from your skin, wash thoroughly with soap and water.
- Dispose of used oil and filters only in a safe and acceptable manner. Do not dispose of used oil and filters in household trash, in sewers or onto the ground. Call your Lexus dealer, service station or auto parts store for information concerning recycling or disposal.
- Do not leave used engine oil within the reach of children.

NOTICE

To prevent serious engine damage

Check the oil level on regular basis.

When replacing the engine oil

- Be careful not to spill engine oil on the vehicle components.
- Avoid overfilling, or the engine could be damaged.
- Check the oil level on the dipstick every time you refill the vehicle.
- Be sure the engine oil filler cap is properly tightened.

Engine coolant

The coolant level is satisfactory if it is between the “FULL” and “LOW” lines on the reservoir when the engine is cold.

1 Reservoir cap
2 “FULL”
3 “LOW”

If the level is on or below the “LOW” line, add coolant up to the “FULL” line. (→P. 660)

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n **If the coolant level drops within a short time after replenishing**

Visually check the radiator, hoses, coolant reservoir cap, drain cock and water pump.
If you cannot find a leak, have your Lexus dealer test the cap and check for leaks in the cooling systems.

■ **Coolant selection**

Only use "Toyota Super Long Life Coolant" or similar high quality ethylene glycol based non-silicate, non-amine, non-nitrite, and non-borate coolant with long-life hybrid organic acid technology.

U.S.A.: "Toyota Super Long Life Coolant" is a mixture of 50% coolant and 50% deionized water. (Enabled: -31°F [-35°C])

Canada: "Toyota Super Long Life Coolant" is a mixture of 55% coolant and 45% deionized water. (Enabled: -44°F [-42°C])

For more details about engine coolant, contact your Lexus dealer.

CAUTION

■ **When the engine is hot**

Do not remove the coolant reservoir cap.
The cooling system may be under pressure and may spray hot coolant if the cap is removed, causing burns or other injuries.

NOTICE

■ **When adding engine coolant**

Coolant is neither plain water nor straight antifreeze. The correct mixture of water and antifreeze must be used to provide proper lubrication, corrosion protection and cooling. Be sure to read the antifreeze or coolant label.

■ **If you spill coolant**

Be sure to wash it off with water to prevent it damaging parts or paint.

Radiator and condenser

Check the radiator and condenser, and clear any foreign objects.
If either of the above parts are extremely dirty or you are not sure of their condition, have your vehicle checked by your Lexus dealer.

CAUTION

n The radiator and condenser may be hot after driving

Do not touch the radiator or condenser, as they may be hot and you may be burned.

Brake fluid

n Checking fluid level

The brake fluid level should be between the “MAX” and “MIN” lines on the tank.

Make sure to check the fluid type and prepare the necessary items.

n Adding fluid

Fluid type	FMVSS No.116 DOT 3 or SAE J1703 brake fluid
Items	Clean funnel

- **Brake fluid can absorb moisture from the air**

  Excess moisture in the fluid can cause a dangerous loss of braking efficiency. Use only newly opened brake fluid.

CAUTION

- **When filling the reservoir**

  Take care because brake fluid can harm your hands or eyes and damage painted surfaces.
  If fluid gets in your eyes, flush your eyes with clean water immediately.

  If you still experience discomfort, see a doctor.

NOTICE

- **If the fluid level is low or high**

  It is normal for the brake fluid level to go down slightly as the brake pads wear or when the fluid level in the accumulator is high.
  If the reservoir needs frequent refilling, it may indicate a serious problem.

Battery

Check the battery as follows.

Battery exterior

Make sure that the battery terminals are not corroded and that there are no loose connections, cracks, or loose clamps.

1. Terminals
2. Hold-down clamp

Checking battery condition

Check the battery condition using the indicator color.

1. Blue: Good condition
2. White: Charging is necessary. Have the vehicle inspected by your Lexus dealer.
3. Red: Not working properly. Have the battery checked by your Lexus dealer.

Before recharging

When recharging, the battery produces hydrogen gas which is flammable and explosive. Therefore, observe the following before recharging:

- If recharging with the battery installed on the vehicle, be sure to disconnect the ground cable.
- Make sure the power switch on the charger is off when connecting and disconnecting the charger cables to the battery.

CAUTION

Chemicals in the battery

A battery contains poisonous and corrosive sulfuric acid and may produce hydrogen gas which is flammable and explosive. To reduce the risk of death or serious injury, take the following precautions while working on or near battery:

- Do not cause sparks by touching the battery terminals with tools.
- Do not smoke or light a match near the battery.
- Avoid contact with eyes, skin and clothes.
- Never inhale or swallow electrolyte.
- Wear protective safety glasses when working near the battery.
- Keep children away from the battery.

Where to safely charge the battery

Always charge the battery in an open area. Do not charge the battery in a garage or closed room where there is not sufficient ventilation.

How to recharge the battery

Only perform a slow charge (5 A or less). The battery may explode if charged at a quicker rate.

CAUTION

n **Emergency measures regarding electrolyte**

- If electrolyte gets in your eyes
  Flush your eyes with clean water for at least 15 minutes and get immediate medical attention. If possible, continue to apply water with a sponge or cloth while traveling to the nearest medical facility.
- If electrolyte gets on your skin
  Wash the affected area thoroughly. If you feel pain or burning, get medical attention immediately.
- If electrolyte gets on your clothes
  It can soak through clothing on to your skin. Immediately take off the clothing and follow the procedure above if necessary.
- If you accidentally swallow electrolyte
  Drink a large quantity of water or milk. Follow with milk of magnesia, beaten raw egg or vegetable oil. Get emergency medical attention immediately.

NOTICE

n **When recharging the battery**

Never recharge the battery while the engine is running. Also, be sure all accessories are turned off.

n **When replacing the battery**

Replace the battery with a battery of the same size.
Installing a battery of a different size will prevent the cover from being properly installed over the battery. This may cause water to enter the engine compartment when it rains or the vehicle is washed, resulting in a malfunction.
For more information about replacing the battery, contact your Lexus dealer.

Washer fluid

If any washer does not work or the warning message appears on the multi-information display, the washer tank may be empty. Add washer fluid.

CAUTION

- **When refilling the washer fluid**

  Do not refill the washer fluid when the engine is hot or running, as the washer fluid contains alcohol and may catch fire if spilled on the engine etc.

NOTICE

- **Do not use any fluid other than washer fluid**

  Do not use soapy water or engine antifreeze instead of washer fluid.
  Doing so may cause streaking on the vehicle's painted surfaces.

- **Diluting washer fluid**

  Dilute washer fluid with water as necessary.
  Refer to the freezing temperatures listed on the washer fluid tank.

Tires

Replace or rotate tires in accordance with maintenance schedules and treadwear.

Checking tires

1 New tread
2 Treadwear indicator
3 Worn tread

The location of treadwear indicators is shown by the "TWI" or "Δ" marks, etc., molded on the sidewall of each tire.

Check spare tire condition and pressure if not rotated.

Tire rotation

Rotate the tires in the order shown.

To equalize tire wear and extend tire life, Lexus recommends that tire rotation is carried out at the same interval as tire inspection.

The tire pressure warning system

Your Lexus is equipped with a tire pressure warning system that uses tire pressure warning valves and transmitters to detect low tire inflation pressure before serious problems arise. (→P. 629, 636)

Installing tire pressure warning valves and transmitters

When replacing tires or wheels, tire pressure warning valves and transmitters must also be installed.

When new tire pressure warning valves and transmitters are installed, new tire pressure warning valve and transmitter ID codes must be registered in the tire pressure warning computer and tire pressure warning system must be initialized. Have tire pressure warning valve and transmitter ID codes registered by your Lexus dealer. (→P. 568)

Initializing the tire pressure warning system

- **The tire pressure warning system must be initialized when the tire inflation pressure is changed (such as when changing traveling speed.)**

  When the tire pressure warning system is initialized, the current tire pressure is set as the pressure benchmark.

n How to initialize the tire pressure warning system

STEP 1 Park the vehicle in safe place and turn the “ENGINE START STOP” switch OFF.

While the vehicle is moving, initialization is not performed.

STEP 2 Adjust the tire inflation pressure to the specified cold tire inflation pressure level. (→P. 675)

Make sure to adjust the tire pressure to the specified cold tire inflation pressure level. The tire pressure warning system will operate based on this pressure level.

STEP 3 Turn the “ENGINE START STOP” switch to IGNITION ON mode.

STEP 4 Push and hold the tire pressure warning reset switch until the tire pressure warning light blinks slowly 3 times and a message appears on the multi-information display.

STEP 5 Wait a few minutes for the multi-information display to show the tire inflation pressures (5 tires), and turn the “ENGINE START STOP” switch OFF.

Registering ID codes

The tire pressure warning valve and transmitter is equipped with a unique ID code. When replacing a tire pressure warning valve and transmitter, it is necessary to register the ID code of tire pressure warning valve and transmitter. Have the ID code registered by your Lexus dealer.

When to replace your vehicle's tires

Tires should be replaced if:

- You have tire damage such as cuts, splits, cracks deep enough to expose the fabric or bulges indicating internal damage.
- A tire goes flat repeatedly or cannot be properly repaired due to the size or location of a cut or other damage.

If you are not sure, consult with your Lexus dealer.

Replacing tires and wheels

If the ID code of the tire pressure warning valve and transmitter is not registered, the tire pressure warning system will not work properly. After driving for about 20 minutes, the tire pressure warning light comes on after blinking for 1 minute to indicate a system malfunction.

Tire life

Any tire over 6 years old must be checked by a qualified technician even if they have seldom or never been used or damage is not obvious.

If the tread wears down below 0.16 in. (4 mm) on snow tires

The effectiveness of the tires as snow tires is lost.

If you push the tire pressure warning reset switch accidentally

If initialization is performed, adjust the tire inflation pressure to the specified level and initialize the tire pressure warning system again.

n **When the initialization of the tire pressure warning system has failed**

Initialization can be completed in a few minutes. However, in the following cases, the settings has not been recorded and the system will not operate properly. If repeated attempts to record tire inflation pressure settings are unsuccessful, have the vehicle inspected by your Lexus dealer.

l When operating the tire pressure warning reset switch, the tire pressure warning light does not flash 3 times and the setting message does not appear on the multi-information display.

l After carrying out the initialization procedure, the tire pressure warning light blinks for 1 minute then stays on after driving for about 20 minutes.

n **Routine tire inflation pressure checks**

The tire pressure warning system does not replace routine tire inflation pressure checks. Make sure to check tire inflation pressure as part of your routine of daily vehicle checks.

n **Maximum load of tire**

Check that the maximum load of the replacement tire is greater than 1/2 of the Gross Axle Weight Ratings (GAWR) of either the front axle or the rear axle, whichever is greater.

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For the GAWR, see the Certification Label. For the maximum load of the tire, see the load limit at maximum cold tire inflation pressure mentioned on the sidewall of the tire. (→P. 681)

n **Tire types**

1 Summer tires

Summer tires are high-speed performance tires best suited to highway driving under dry conditions. Since summer tires do not have the same traction performance as snow tires, summer tires are inadequate for driving on snow-covered or icy roads. For driving on snow-covered roads or icy roads, the use of snow tires is recommended. When installing snow tires, be sure to replace all four tires.

2 All season tires

All season tires are designed to provide better traction in snow and to be adequate for driving in most winter conditions, as well as for use year round. All season tires, however, do not have adequate traction performance compared with snow tires in heavy or loose snow. Also, all season tires fall short in acceleration and handling performance compared with summer tires in highway driving.

3 Snow tires

For driving on snow-covered roads or icy roads, we recommend using snow tires. If you need snow tires, select tires of the same size, construction and load capacity as the originally installed tires. Since your vehicle has radial tires as original equipment, make sure your snow tires also have radial construction. Do not install studded tires without first checking local regulations for possible restriction. Snow tires should be installed on all wheels. (→P. 232)

Initializing the tire pressure warning system

Initialize the tire pressure warning system with the tire inflation pressure adjusted to the specified level.

Tire pressure warning system certification

FCC ID: PAXPMV107J

FCC ID: HYQ13BCG

IC ID: 3729A-PMV107J

IC ID: 1551A-13BCG

▶ For vehicles sold in the U.S.A.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

FCC WARNING:
Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

▶ For vehicles sold in Canada

Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.

CAUTION

■ **When inspecting or replacing tires**

Observe the following precautions to prevent accidents.
Failure to do so may cause damage to parts of the drive train, as well as dangerous handling characteristics, which may lead to an accident resulting in death or serious injury.

- Do not mix tires of different makes, models or tread patterns.
  Also, do not mix tires of remarkably different treadwear.
- Do not use tire sizes other than those recommended by Lexus.
- Do not mix differently constructed tires (radial, bias-belted or bias-ply tires).
- Do not mix summer, all season and winter tires.

■ **Using tires of a different size**

Do not use tires of a different size from those equipped when the vehicle was new, as the front tire steering angle setting is designed for the original tire size. It is dangerous to use an incorrect wheel and tire combination as this may result in reduced vehicle stability.

■ **When initializing the tire pressure warning system**

Do not push the tire pressure warning reset switch without first adjusting the tire inflation pressure to the specified level. Otherwise, the tire pressure warning light may not come on even if the tire inflation pressure is low, or it may come on when the tire not inflation pressure is actually normal.

NOTICE

- **Repairing or replacing tires, wheels and tire pressure warning valves and transmitters**
  - When removing or fitting the wheels, tires or the tire pressure warning valve and transmitter, contact your Lexus dealer as the tire pressure warning valve and transmitter may be damaged if not handled correctly.
  - When replacing tires, make sure also to replace the tire pressure warning valve and transmitter grommets.
- **To avoid damaging the tire pressure warning valves and transmitters**

  Do not use liquid sealants on flat tires.
- **Driving on rough roads**

  Take particular care when driving on roads with loose surfaces or potholes.
  These conditions may cause losses in tire inflation pressure, reducing the cushioning ability of the tires. In addition, driving on rough roads may cause damage to the tires themselves, as well as the vehicle's wheels and body.
- **If tire inflation pressures become low while driving**

  Do not continue driving, or your tires and/or wheels may be ruined.

Tire inflation pressure

Tire inflation pressure

The recommended cold tire inflation pressure and tire size is displayed on the tire and loading information label. (→P. 681)

▶ Type A

▶ Type B

Inspection and adjustment procedure

1 Tire valve

2 Tire pressure gauge

STEP 1 Remove the tire valve cap.

STEP 2 Press the tip of the tire pressure gauge onto the tire valve.

STEP 3 Read the pressure using the graduations of the gauge.

STEP 4 If the tire inflation pressure is not within the recommended levels, adjust inflate the tire.
If you add too much air, press the center of the valve to lower.

STEP 5 After completing the tire inflation pressure measurement and adjustment, apply soapy water to the valve and check for leakage.

STEP 6 Reinstall the tire valve cap.

Tire inflation pressure check interval

You should check tire inflation pressure every two weeks, or at least once a month. Do not forget to check the spare.

Effects of incorrect tire inflation pressure

Driving with incorrect tire inflation pressure may result in the following:

- Reduced fuel efficiency
- Reduced driving comfort and tire life
- Reduced safety
- Damage to the drive train

If a tire needs frequent refilling, have it checked by your Lexus dealer.

Instructions for checking tire inflation pressure

When checking tire inflation pressure, observe the following:

- Check only when the tires are cold.
  If your vehicle has been parked for at least 3 hours and has not been driven for more than 1 mile or 1.5 km, you will get an accurate cold tire inflation pressure reading.
- Always use a tire pressure gauge.
  The appearance of the tire can be misleading. In addition, tire inflation pressures that are even just a few pounds off can degrade ride and handling.
- Do not bleed or reduce tire inflation pressure after driving. It is normal for the tire inflation pressure to be higher after driving.
- Never exceed the vehicle capacity weight.
  Passengers and luggage weight should be placed so that the vehicle is balanced.

CAUTION

Proper inflation is critical to save tire performance

Keep your tires properly inflated. Otherwise, the following conditions may occur and result in an accident causing death or serious injury:

- Excessive wear
- Uneven wear
- Poor handling
- Possibility of blowouts resulting from overheated tires
- Poor sealing of the tire bead
- Wheel deformation and/or tire separation
- A greater possibility of tire damage from road hazards

NOTICE

When inspecting and adjusting tire inflation pressure

Be sure to reinstall the tire valve caps.
Without the valve caps, dirt or moisture could get into the valve and cause air leakage, which could result in an accident. If the caps have been lost, replace them as soon as possible.

Wheels

If a wheel is bent, cracked or heavily corroded, it should be replaced. Otherwise, the tire may separate from the wheel or cause loss of handling control.

Wheel selection

When replacing wheels, care should be taken to ensure that they are equivalent to those removed in load capacity, diameter, rim width, and inset*.

Replacement wheels are available at your Lexus dealer.

*: Conventionally referred to as “offset”.

Lexus does not recommend using the following:

- Wheels of different sizes or types
- Used wheels
- Bent wheels that have been straightened

Aluminum wheel precautions

- Use only Lexus wheel nuts and wrenches designed for use with your aluminum wheels.
- When rotating, repairing or changing your tires, check that the wheel nuts are still tight after driving 1000 miles (1600 km).
- Be careful not to damage the aluminum wheels when using tire chains.
- Use only Lexus genuine balance weights or equivalent and a plastic or rubber hammer when balancing your wheels.

When replacing wheels

The wheels of your Lexus are equipped with tire pressure warning valves and transmitters that allow the tire pressure warning system to provide advanced warning in the event of a loss in tire inflation pressure. Whenever wheels are replaced, the tire pressure warning valves and transmitters must be installed. (→P. 566)

CAUTION

When replacing wheels

- Do not use wheels that are a different size from those recommended in the Owner's Manual, as this may result in loss of handling control.
- Never use an inner tube in a leaking wheel which is designed for a tubeless tire. Doing so may result in an accident, causing serious injury or death.

NOTICE

Replacing tire pressure warning valves and transmitters

- Because tire repair or replacement may affect the tire pressure warning valves and transmitters, make sure to have tires serviced by your Lexus dealer or other qualified service shop. In addition, make sure to purchase your tire pressure warning valves and transmitters at your Lexus dealer.
- Ensure that only Genuine Lexus wheels are used on your vehicle. Tire pressure warning valves and transmitters may not work properly with non-genuine wheels.

Air conditioning filter

The air conditioning filter must be changed regularly to maintain air conditioning efficiency.

Front air conditioning filter

STEP 1 Set the air conditioning system to recirculated mode. (→P. 247, 257, 266)

The air conditioning filter case cannot be removed with the system in the outside air mode.

STEP 2 Turn the "ENGINE START STOP" switch OFF.

STEP 3 Open the glove box. Lift and remove the partition.

STEP 4 Remove the filter cover.

STEP 5 Remove the filter case.

STEP 6 Remove the air conditioning filter from the filter case and replace it with a new one.

The ↑UP marks shown on the filter and the filter case should be pointing up.

STEP 7 Reset the air conditioning filter maintenance data. (→P. 581)

Rear air conditioning filter (if equipped)

STEP 1 Turn the "ENGINE START STOP" switch OFF.

STEP 2 Open the trunk lid. Remove the filter cover.

STEP 3 Remove the air conditioning filter and replace it with a new one.

The ↑UP marks shown on the filter should be pointing up.

n **Changing interval for the front air conditioning filter**

Inspect and replace the air conditioning filter when a message is appeared on the multi-information display. In dusty areas or areas with heavy traffic flow, early replacement may be required.

n **If air flow from the vents decreases dramatically**

The filter may be clogged. Check the filter and replace if necessary.

n **After changing the air conditioning filter**

The air conditioning filter maintenance data should be reset. Perform the following procedures:

STEP 1 Turn the “ENGINE START STOP” switch to IGNITION ON mode.

STEP 2 Press and hold OFF (on the air conditioning panel) for 4 seconds or more.

A buzzer will sound to indicate that the maintenance data has been successfully reset.

n **Rear air conditioning filter (if equipped)**

If it is necessary to clean or replace the filter, contact your Lexus dealer.

n **Climate control seat filter**

On vehicles with climate control seats, filters are installed in the seats. When it is necessary to clean or replace the filters, contact your Lexus dealer.

NOTICE

n **When using the air conditioning system**

Make sure that a filter is always installed.

Using the air conditioning system without a filter may cause damage to the system.

Electronic key battery

Replace the battery with a new one if it is discharged.

n You will need the following items:

- l Flathead screwdriver
- l Small Phillips-head screwdriver
- l Lithium battery (CR1632)

n Replacing the battery

STEP 1

Take out the mechanical key.

STEP 2

Remove the cover.

STEP 3

Remove the depleted battery.

Insert a new battery with the “+” terminal facing up.

If the electronic key battery is discharged

The following symptoms may occur:

- The smart access system with push-button start and wireless remote control will not function properly.
- The operational range is reduced.

Use a CR1632 lithium battery

- Batteries can be purchased at your Lexus dealer, jewelers, or camera stores.
- Replace only with the same or equivalent type recommended by the manufacturer.
- Dispose of used batteries according to the local laws.

When the card key battery needs to be replaced (if equipped)

The battery for the card key is available only at Lexus dealers. Your Lexus dealer can replace the battery for you.

CAUTION

Removed battery and other parts

Keep away from children.
These parts are small and if swallowed by a child, they can cause choking.

NOTICE

For normal operation after replacing the battery

Observe the following precautions to prevent accidents:

- Always work with dry hands.
  Moisture may cause the battery to rust.
- Do not touch or move any other components inside the remote control.
- Do not bend either of the battery terminals.

Checking and replacing fuses

If any of the electrical components do not operate, a fuse may have blown. If this happens, check and replace the fuses as necessary.

STEP 1 Turn the "ENGINE START STOP" switch OFF.

STEP 2 Remove the engine compartment cover. (→P. 550)

STEP 3 Open the fuse box cover.

▶ Engine compartment (type A fuse box)

Push the tabs in and lift the lid off.

▶ Engine compartment (type B fuse box)

Push the tab in and lift the lid off.

▶ Driver's side instrument panel

Remove the lid.

▶ Passenger's side instrument panel

Remove the lid.

▶ Trunk

Remove the lid.

STEP 4 After a system failure, see “Fuse layout and amperage ratings” for details about which fuse to check. (→P. 588)

STEP 5 Take out the pullout tool.

Only type A fuse can be removed using the pullout tool.

STEP 6 Check if the fuse has blown.

▶ Type A

1 Normal fuse

2 Blown fuse

Replace it with one of an appropriate amperage rating. The amperage rating can be found on the fuse box lid.

▶ Type B

1 Normal fuse

2 Blown fuse

Replace it with one of an appropriate amperage rating. The amperage rating can be found on the fuse box lid.

▶ Type C

1 Normal fuse

2 Blown fuse

Contact your Lexus dealer.

▶ Type D

1 Normal fuse

2 Blown fuse

Contact your Lexus dealer.

Fuse layout and amperage ratings

■ Engine compartment (type A fuse box)

Fuse		Ampere	Circuit
1	PTC HTR 3	25 A	PTC heater
2	PTC HTR 1	25 A	PTC heater
3	VSSR	5 A	Electric power control system
4	ALT	180 A	AIR SUS, HTR, DEFOG, FAN NO.1, H-LP CLN, PTC HTR 2, PTC HTR, RR A/C, E/G RM1, D-J/B ALT, P-J/B ALT, LUG-J/B ALT
5	PTC HTR	60 A	PTC HTR 1, PTC HTR 3
6	FAN NO.1	80 A	Electric cooling fans
7	E/G RM1	80 A	DEICER, WIP, E/G RM-IG1-1, E/G RM-IG1-2, NV IR, FR FOG, FR CTRL ALT, ABS MTR1

Fuse		Ampere	Circuit
8	D-J/B ALT	80 A	OBD, D P/SEAT, TI&TE, AM1, D S/HTR, S/ROOF, D RR S/HTR, D-IG1-1, D-IG1-2, D-IG1-3, D-IG1-4, D-ACC, PWR OUTLET, PANEL
9	P-J/B ALT	60 A	P P/SEAT 1, P P/SEAT 2, A/C, RR SEAT, P S/HTR, P RR S/HTR, P-IG1-1, P-IG1-2, P-IG1-3, P-IG1-4, P-ACC, P-CIG, AIR SUS
10	LUG-J/B ALT	50 A	PTL, RL SEAT, B/ANC, FUEL OPN, RR S/SHADE, PSB, RR-IG1-1, RR-IG1-2, RR-IG1-3, RR-IG1-4, RR-ACC, RR-CIG, AC100/115V
11	RR A/C	30 A	Rear air conditioning system
12	AIR SUS	40 A	Electronically modulated air suspension system
13	HTR	50 A	Air conditioning system
14	NOISE FILTER	40 A	—
15	DEFOG	40 A	Rear window defogger
16	PTC HTR 2	50 A	PTC heater
17	H-LP CLN	30 A	Headlight cleaner
18	E/G RM B	80 A	D/C CUT 1, FR CTRL BAT, EPS ECU, ABS MAIN 2, ABS MTR2, ST, H-LP RL, H-LP LL, H-LP LVL
19	EFI	80 A	VVT, ETCS, ABS MAIN 1, EDU1, EDU2, A/F, ECU-IG, IGN, INJ, P-J/B
20	EPS	80 A	DC-DC converter
21	EFI NO.1	40 A	Multiport fuel injection system/ sequential multiport fuel injection system

Fuse		Ampere	Circuit
22	E/G RM B2	30 A	ABS MAIN 3, ECU-B2, D/C CUT 2
23	D-J/B B	40 A	D-DOOR 1, D RR DOOR, HAZ, D-DOOR 2, STR LOCK, STOP, SECURITY
24	LUG J/B B	40 A	STOP LP 1, STOP LP 2, TAIL, E-PKB, ABS MAIN 4
25	P-J/B B	40 A	P DOOR 1, P RR DOOR, AM2, RADIO NO.1, P-D/C CUT, P DOOR 2, PMG, AMP
26	VGRS	40 A	VGRS
27	BAT VB	30 A	VSSR

n Engine compartment (type B fuse box)

Fuse		Ampere	Circuit
1	DEICER	25 A	Windshield wiper de-icer
2	WIP	30 A	Windshield wiper
3	ABS MAIN 2	10 A	ABS, VSC, VDIM
4	IGCT 1	25 A	Smart access system with push-button start
5	EPS ECU	10 A	EPS
6	FR CTRL BAT	30 A	Headlight high beams, horns

Fuse		Ampere	Circuit
7	E/G RM-IG1-2	10 A	AFS, headlight high beams, parking lights, side marker lights, horns, windshield washer, exhaust system, headlight cleaner
8	E/G RM-IG1-1	10 A	Starting system, EPS, electric cooling fans, AFS
9	H-LP LL	15 A	Headlight low beam (left)
10	ABS MAIN 1	10 A	Brake system, pre-collision seat belt
11	H-LP RL	15 A	Headlight low beam (right)
12	ETCS	10 A	Multiport fuel injection system/ sequential multiport fuel injection system
13	NV IR	10 A	Cruise control system
14	IGN	10 A	Multiport fuel injection system/ sequential multiport fuel injection system, brake system, SRS airbag system
15	ECU-IG	10 A	Multiport fuel injection system/ sequential multiport fuel injection system, stop lights, pre-collision seat belt, charging system
16	D/C CUT 1	30 A	ECU-B, D MPX-B 1, D MPX-B 2, DOME
17	ECU-B	10 A	Headlight high beams, parking lights, horns, windshield washer, pre-collision seat belt, headlight cleaner
18	A/F	15 A	Multiport fuel injection system/ sequential multiport fuel injection system, exhaust system

Fuse		Ampere	Circuit
19	EDU2	25 A	Multiport fuel injection system/ sequential multiport fuel injection system
20	FR CTRL ALT	20 A	Windshield washer, headlight cleaner, parking lights, side maker lights
21	EDU1	25 A	Multiport fuel injection system/ sequential multiport fuel injection system
22	RELIEF VLV	10 A	Fuel system
23	FR FOG	15 A	Front fog lights
24	A/C W/P	10 A	Air conditioning system, electric cooling fans
25	H-LP LVL	10 A	Discharge headlights, headlight high beams, parking lights, side marker lights, horns, windshield washer
26	P-J/B	10 A	P IG2, P RR-IG2
27	INJ	10 A	Multiport fuel injection system/ sequential multiport fuel injection system
28	D/C CUT 2	30 A	P MPX-B, RR MPX-B1, RR MPX-B2
29	ECU-B 2	5 A	Brake system
30	ABS MAIN 3	10 A	Brake system, pre-collision seat belt
31	EFI MAIN 2	25 A	Multiport fuel injection system/ sequential multiport fuel injection system, exhaust system
32	EFI MAIN	25 A	Multiport fuel injection system/ sequential multiport fuel injection system, fuel system

Fuse		Ampere	Circuit
33	EFI	10 A	Multiport fuel injection system/ sequential multiport fuel injection system, fuel system
34	EFI-B	10 A	Multiport fuel injection system/ sequential multiport fuel injection system
35	ST	30 A	Starter system
36	ABS MTR1	50 A	Brake system
37	ABS MTR2	50 A	Brake system
38	VVT	40 A	Multiport fuel injection system/ sequential multiport fuel injection system

Driver's side instrument panel

Fuse		Ampere	Circuit
1	D-IG1-3	10 A	Automatic transmission, power door lock system, cruise control system, brake system, rear window defogger, moon roof, pre-collision seat belt, head restraints, power outlet, turn signal lights, climate control seat system, audio system
2	D-IG1-2	5 A	Cruise control system
3	D-IG1-4	15 A	Starter system, climate control seat system
4	D-IG1-1	5 A	Main body ECU, pre-collision seat belt, tilt and telescopic steering column, starter system
5	PWR OUTLET	15 A	Power outlet
6	D-ACC	5 A	Multiplex communication system
7	S/ROOF	30 A	Moon roof
8	TI&TE	30 A	Tilt and telescopic steering column

Fuse		Ampere	Circuit
9	AM1	5 A	Power door lock system
10	OBD	10 A	On-board diagnosis system
11	D P/SEAT	30 A	Front seat adjustment
12	D S/HTR	20 A	Climate control seat system
13	D RR S/HTR	30 A	Climate control seat system
14	D MPX-B 1	10 A	Meters and gauges, front seat adjustment, rear seat adjustment, tilt and telescopic steering column, power door lock system, cruise control system
15	DOME	10 A	Interior lights, clock
16	D MPX-B 2	10 A	Audio system
17	PANEL	10 A	Fuel filler door opener, interior lights, audio system
18	SECURITY	5 A	Smart access system with push-button start
19	STR LOCK	20 A	Steering lock system
20	D DOOR 2	10 A	Power door lock system
21	HAZ	10 A	Emergency flashers
22	D RR DOOR	25 A	Interior lights, power door lock system, power windows
23	D DOOR 1	25 A	Interior lights, outside rear view mirror, power door lock system, power windows, outside rear view mirror defogger
24	STOP	5 A	Stop lights
25	AMP	30 A	Audio system

n Passenger's side instrument panel

Fuse		Ampere	Circuit
1	P-IG1-2	5 A	Audio system
2	P-IG1-3	5 A	VGRS
3	P-IG1-1	10 A	Audio system, navigation system, power door lock system, air conditioning system, head restraints, pre-collision seat belt, intuitive parking assist, tire pressure warning system
4	P-IG1-4	10 A	Climate control seat system
5	P-CIG	15 A	Cigarette lighter
6	P-ACC	5 A	Audio system, navigation system, clock, Lexus link system, cruise control system
7	A/C	10 A	Air conditioning system
8	P S/HTR	20 A	Climate control seat system
9	P P/SEAT 2	30 A	Front seat adjustment
10	RR SEAT	30 A	Rear seat adjustment

Fuse		Ampere	Circuit
11	P P/SEAT 1	30 A	Front seat adjustment
12	P RR S/HTR	30 A	Climate control seat system
13	P IG2	5 A	Tilt and telescopic steering column, smart access system with push-button start, meters and gauges, electric power control system, Lexus link system
14	P RR-IG2	5 A	On-board diagnosis system, Lexus link system
15	P MPX-B	10 A	Power door lock system, front seat adjustment, rear seat adjustment, VGRS, smart access system with push-button start, starter system, intuitive parking assist
16	AIR SUS	20 A	Electronically modulated air suspension system
17	AM2	5 A	Multiplex communication system
18	RADIO NO.1	20 A	Air conditioning system, navigation system, Lexus link system
19	PMG	5 A	Electric power control system
20	P-D/C CUT	5 A	Headlight switch, windshield wiper and washer, horn, tilt and telescopic steering column, power windows, power door lock system, door sunshade, rear sunshade, rear seat adjustment, steering wheel switches
21	P DOOR 2	10 A	Power door lock system
22	P RR DOOR	25 A	Interior lights, power door lock system, power windows

Fuse		Ampere	Circuit
23	P DOOR 1	25 A	Interior lights, outside rear view mirror, power door lock system, power windows, outside rear view mirror defogger
24	AMP	30 A	Audio system

n Trunk

CLY43AD166

Fuse		Ampere	Circuit
1	RR-IG1-3	10 A	Climate control seat system
2	RR-IG1-4	10 A	Rear seat adjustment
3	RR-IG1-2	10 A	Power door lock system, cool box, air conditioning system
4	RR-IG1-1	5 A	Capacitor, brake system, pre-collision seat belt, rear seat adjustment
5	RR-ACC	5 A	Audio system, rear seat entertainment system
6	RR-CIG	15 A	Cigarette lighter
7	AC100/115V	15 A	Power outlet

Fuse		Ampere	Circuit
8	RL SEAT	30 A	Rear seat adjustment
9	B/ANC	10 A	Shoulder anchor
10	RR S/SHADE	10 A	Rear sunshade
11	PSB	30 A	Pre-collision seat belt
12	PTL	30 A	Power trunk opener and closer
13	FUEL OPN	15 A	Fuel filler door opener, power trunk opener and closer
14	RR MPX-B 1	10 A	Audio system, rear seat entertainment system, power trunk opener and closer
15	RR MPX-B 2	5 A	Power door lock system, rear seat adjustment, interior lights, power trunk opener and closer
16	IGCT 3	5 A	—
17	BATT FAN	20 A	Electric cooling fans
18	B-FAN RLY	5 A	Electric cooling fans
19	RR ECU-B	5 A	Seat belt buckle lights, trunk light
20	ABS MAIN 4	10 A	Capacitor
21	STOP LP 1	10 A	Stop lights, back-up lights
22	STOP LP 2	10 A	Stop lights, high-mounted stoplights
23	TAIL	5 A	Tail lights, license plate lights
24	E-PKB	30 A	Brake system

After a fuse is replaced

- If the lights do not turn on even after the fuse has been replaced, a bulb may need replacement. (→P. 603)
- If the replaced fuse blows again, have the vehicle inspected by your Lexus dealer.

If there is an overload in the circuit

The fuses are designed to blow before the entire wiring harness is damaged.

CAUTION

To prevent system breakdowns and vehicle fire

Observe the following precautions.
Failing to do so may cause damage, and possibly a fire or injury.

- Never use a fuse of a higher amperage rating than indicated, or use any other object in place of a fuse.
- Always use a genuine Lexus fuse or equivalent.
  Never replace a fuse with a wire, even as a temporary fix.
  This can cause extensive damage or even fire.
- Do not modify fuses or the fuse box.

NOTICE

Before replacing fuses

Have the cause of electrical overload determined and repaired by your Lexus dealer.

Headlight aim

■ **Removing the engine compartment cover.**

→P. 550

■ **Vertical movement adjusting bolts**

1 Adjustment bolt A

2 Adjustment bolt B

■ **Before checking the headlight aim**

STEP 1 Make sure the vehicle has a full tank of gas and the area around the headlight is not deformed.

STEP 2 Park the vehicle on level ground.

STEP 3 Sit in the driver's seat.

STEP 4 Bounce the vehicle several times.

■ **Adjusting the headlight aim**

STEP 1

Turn bolt A in either direction using a Phillips-head screwdriver.

Remember the turning direction and the number of turns in mind.

STEP 2 Turn bolt B the same number of turns and in the same direction as step 1 using a Phillips-head screwdriver.

If the error is over the value specified above, take the vehicle to your Lexus dealer to adjust the headlight aim

Light bulbs

You may replace the following bulbs by yourself. The difficulty level of replacement varies depending on the bulb. If necessary bulb replacement seems difficult to perform, contact your Lexus dealer.
For more information about replacing other light bulbs, contact your Lexus dealer.

Preparing for light bulb replacement

Check the wattage of the light bulb being replaced. (→P. 677)

Remove the engine compartment cover

→P. 550

Front bulb locations

Front turn signal light
Front fog light
Headlight high beam

CLY43AD089

Rear bulb locations

Back-up light
Rear turn signal light

CLY43AD091

Replacing light bulbs

Headlight high beams

STEP 1 Before replacing the bulbs:

▶ Left side

CLY43AD093

Remove the securing bolt and move the washer fluid filler opening.

▶ Right side

Remove the securing bolts and nut, and move the fuse block.

STEP 2 Turn the cover counterclockwise and remove it.

STEP 3 Turn the bulb base counterclockwise.

STEP 4 Unplug the connector while depressing the lock release.

Front fog lights

STEP 1

To allow enough working clearance, turn the steering wheel to the opposite side of the bulb to be replaced.

Remove the fender liner bolt and clips, and then remove the fender liner.

STEP 2

Turn the bulb base counterclockwise.

STEP 3

Unplug the connector while depressing the lock release.

STEP 4 Install the bolt and clips.

Front turn signal lights

STEP 1 Before replacing the bulbs:

▶ Left side

Remove the securing bolt and move the washer fluid filler opening.

▶ Right side

Remove the securing bolts and nut, and move the fuse block.

STEP 2 Turn the cover counterclockwise and remove it.

STEP 3 Turn the bulb base counterclockwise.

STEP 4 Remove the light bulb.

Back-up lights

STEP 1 Open the trunk lid and remove the cover.

STEP 2 Turn the bulb bases counterclockwise.

STEP 3 Remove the light bulb.

■ Rear turn signal lights

STEP 1 Open the trunk lid and remove the cover.

STEP 2 Turn the bulb bases counterclockwise.

STEP 3 Remove the light bulbs.

Lights other than the above

If any of the lights listed below has burnt out, have it replaced by your Lexus dealer.

- Headlight low beams
- Parking lights
- Side turn signal lights
- Side marker lights
- Stop/tail lights
- High mounted stoplight
- License plate lights

- **Condensation build-up on the inside of the lens**

  Contact your Lexus dealer for more information in the following situations. Temporary condensation build-up on the inside of the headlight lens does not indicate a malfunction.

  - Large drops of water are built up on the inside of the lens.
  - Water has built up inside the headlight.

- **Discharge headlights**

  If voltage to the discharge bulbs is insufficient, the bulbs may not come on, or may go out temporarily. The discharge bulbs will come on when normal power is restored.

- **LED stop/tail lights and high mounted stoplight**

  The stop/tail lights and high mounted stoplight consists of a number of LEDs. If any of the LEDs burn out, take your vehicle to your Lexus dealer to have the light replaced.

CAUTION

Replacing light bulbs

- Turn off the headlights. Do not attempt to replace the bulb immediately after turning off the headlights.
  The bulbs become very hot and may cause burns.
- Do not touch the glass portion of the light bulb with bare hands. Hold the bulb by the plastic or metal portion.
  If the bulb is scratched or dropped it may blow out or crack.
- Fully install light bulbs and any parts used to secure them. Failing to do so may result in heat damage, fire, or water entering the headlight unit. This may damage the headlights or cause condensation to build up on the lens.
- Do not attempt to take apart or repair the low beam discharge headlight bulbs, connectors, power supply circuits, or related components.
  Doing so could result in electric shock and serious injury or death.

Discharge headlights

- Contact your Lexus dealer before replacing discharge headlights (including light bulbs).
- Do not touch the high-intensity discharge headlight's high voltage socket when the headlights are turned on.
  An extremely high voltage of 20000 V will be discharged and could result in serious injury or death by electric shock.

To prevent damage or fire

Make sure bulbs are fully seated and locked.